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NEW JAPANESE *ICHNEUMONIDAE* PARASITIC ON PINE SAWFLIES

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The descriptions of the five new species described below are based on material reared in Japan by R. W. BURRELL, of the Bureau of Entomology and Plant Quarantine, from cocoons of *Diprion nipponicum* ROHWER and *Neodiprion sertifer* (GEOFFROY).

Holotypes, allotypes, and paratypes of all five are in the U. S. National Museum, while paratypes of all five are deposited in the collection of the Entomological Institute, Hokkaido Imperial University, Sapporo, Japan.

***Pezoporus annulaticrus* new species**

Belongs to the section of the genus, including *basizonus* (GRAV.) and *sericans* (GRAV.), characterized by having the body, legs, and antennae stout, head narrower than thorax, eyes small, malar space very long, thorax depressed, notauli very short, propodeum short, basal carina absent, apical carina medially far before middle, abdomen broad and not compressed at apex, petiole broad, and ovipositor short.

Female—Length 6.5-10 mm.

Head hardly twice as broad as thick, finely punctate, densely so on sides of face; temple convex, slightly receding, nearly as long as short diameter of eye; frontal scrobes distinct, polished; postocellar line only slightly longer than ocellular line; face medially and clypeus slightly convex, sparsely punctate, clypeus broadly truncate; malar space fully a third longer than basal width of mandible; eyes distinctly divergent below; antenna not quite two-thirds as long as body, 26- to 27-jointed, first four flagellar joints subequal, second very slightly the longest, fifth abruptly shorter, first hardly twice as long as thick. **Thorax** distinctly broader than deep, punctate; mesoscutum more finely and densely; mesopleuron and sternum more coarsely so; pronotal scrobe rugulose; metapleuron rugulose punctate; scutellum polished, with few punctures; propodeum rugulose, mat, petiolar area nearly flat, reaching nearly two-thirds of way to

base, areola weakly defined, costulae wanting, lateral angles weak. **Wings:** Second recurrent vein based of middle of areolet; nervulus postfurcal; nervellus broken at about lower third. **Legs** stout, hind femur hardly four times as long as deep; inner hind calcarium hardly half as long as basitarsus. **Abdomen** very broad, polished, densely pubescent; first tergite two-thirds as broad as long, petiole nearly twice as broad as thick; tergites 2 and 3 subequal in length and each about twice as broad as long; ovipositor sheath shorter than first tergite.

Black; abdomen with tergites 1-2 or 1-3 sometimes very narrowly margined with reddish piceous; incomplete annulus on flagellar joints (5) 6-9 (10), wing radices, bases of all tibiae (more reddish on front and middle tibiae), and a membranous spot on seventh tergite whitish; wings hyaline, veins and stigma black.

Male—Differs from female in having the head thinner with temples shorter and more strongly receding, malar space hardly so long as basal width of mandible, antenna nearly as long as body, 28- to 30-jointed, tapering from middle to apex; thorax not evidently depressed, petiolar area extending little more than half way to base; abdomen much more slender; also whitish are sides of face, scape below, anterior margin of pronotum medially, a narrow transverse line near apex of scutellum, and the calcaria; antenna without white annulus; extensor surface of front tibia (sometimes that of middle tibia also) fuscous or grayish white; seventh tergite of uniform texture and entirely black.

Hosts—*Diprion nipponicum* ROHWER; *Neodiprion sertifer* (GEOFFROY).

Typelocality—Nagaizumi, Shizuoka-Ken, Japan.

Type—No. 52114, U. S. National Museum.

Twenty-eight females and 10 males (including holotype female and allotype male) reared by R. W. BURRELL on March 29, 1937, from cocoons of *D. nipponicum* collected in March 1936; and 5 females and one male reared from cocoons of *N. sertifer* in 1934, also by Mr. BURRELL.

***Pezoporus opacus* new species**

Apparently this species is related to *funereus* SCHMIEDEKNECHT, to which it runs in that author's key to European species of *Microcryptus*, which is a synonym of *Pezoporus*.¹⁾ It is, however, by no means a typical *Pezoporus*. In FOERSTER's key to the *Phygadeuontoidae*²⁾ it runs directly to *Pammachus* FOERSTER, but is not congeneric with the accepted genotype, which, incidentally, runs to *Ecpaglus* rather than to *Pammachus* because of its cubical head.

(1). Opuscula Ichneumonologica, fasc. 6, 1904, p. 630.

(2). Verb. nat. Ver. preuss. Rheinl., vol. 25, 1868, p. 185.

Very similar in size, form, and color to *annulaticrus* CUSHMAN, but distinguishable at once by the mat surface of the abdomen, longer antennae, and apically inflexed clypeus, and by the lack of basal white annuli on the tibiae.

Female—Length 8.5–10 mm.

Head narrower than thorax, hardly twice as broad as thick, temples strongly convex, somewhat receding; postocellar line much longer than ocell-ocular line; temples, vertex, and frons finely punctate, frontal scrobes distinct, polished; face laterally flat and very finely coriaceous, mat, shallowly punctate, medially subpolished and strongly convex; clypeus subpolished, strongly inflexed apically, broadly truncate; malar space slightly longer than basal width of mandible, which is slightly swollen basally; eyes strongly divergent below; antenna nearly as long as body, 33- to 35-jointed, first four flagellar joints successively shorter, first about three times as long as thick. **Thorax** slightly deeper than broad, dorsally mat and very finely punctate, laterally rugulose-punctate, ventrally subpolished and sparsely punctate; notauli distinct anteriorly; scutellum subpolished, more coarsely and sparsely punctate than mesoscutum; propodeum rugulose; petiolar area nearly flat, reaching two-thirds of way to base, areola obsoletely defined, costulae wanting, apical carina slightly prominent at angles. **Wings:** Second recurrent at middle of areolet, nervulus interstitial, nervellus broken very near bottom. **Legs** moderately stout, hind femur fully five times as long as deep; inner hind calcarium more than half as long as basitarsus. **Abdomen** broad, very finely coriaceous, mat; first tergite hardly more than half as broad as long, petiole not nearly twice as broad as thick, tergite 2 much longer than 3, about twice as broad as long; ovipositor sheath distinctly shorter than first tergite.

Black; incomplete annulus on flagellar joints (5) 6–10 and membranous spot on tergite 7 white; front tibia and apex of femur anteriorly reddish; wings hyaline, veins and stigma black.

Male—More shining than female; malar space shorter; eyes nearly parallel; clypeus not so distinctly inflexed; antenna tapering to apex. Antenna without annulus; scape below, face, clypeus, labrum, spot on mandible, palpi, spots on tegula and radix of wing, joints 2–4 of front and middle tarsi, and 2–4 and part of 5 of hind tarsus white; extensor surfaces of front and middle tibiae whitish; front tibia elsewhere, basitarsus, and anterior surface of front femur reddish.

Host—*Diprion nipponicum* ROHWER.

Typelocality—Nagaizumi, Shizuoka-Ken, Japan.

Type—No. 52115, U. S. National Museum.

Five females (including holotype) and 9 males all reared by R. W. BURRELL

on March 29, 1937, from cocoons of the host collected the previous March.

***Delomerista japonica* new species**

In SCHMIEDEKNECHT's key to the European species¹⁾ of *Delomerista* this species runs best, though not satisfactorily, to *laevis* GRAVENHORST, from SCHMIEDEKNECHT's description of which it may be distinguished by the color of the hind tibia and tarsus as well as by several details of structure and sculpture.

Female—Length 6–10 mm.

Head polished, finely and sparsely punctate; face more coarsely and densely punctate, medially convex; malar space one-third as long as basal width of mandible; antenna slightly shorter than body, 29- to 34-jointed. **Thorax** polished, minutely and sparsely punctate, pronotum laterally and a large speculum impunctate; propodeum shining, more or less punctate or rugulose-punctate, dorsally sometimes virtually without sculpture, areola from slightly longer than wide to as wide as long, costulae absent to faintly indicated. **Abdomen** mat, granulated, coarsely so basally, more finely so and subpolished apically, apices of tergites also subpolished; tergite 2 with distinct oblique grooves diverging from base, gastrocels deep; tergite 3 with a shallow impression across base; ovipositor stout, bluntly pointed, sheath distinctly less than half as long as abdomen.

Black; antenna brownish at apex; palpi grayish; mandible, malar space, humeral angle of pronotum, and base of tegula whitish; apex of tegula brown; wings hyaline, venation blackish, costa and small spot at base of stigma stramineous; front and middle legs ferruginous, anteriorly stramineous, trochanters whitish; hind coxa and femur dark ferruginous, apex of latter more or less blackish, trochanter stramineous, tibia and tarsus black, extreme base and flexor surface of tibia and a narrow basal annulus on tarsus whitish; abdomen black with membranous edges of apical tergites more or less reddish or whitish, venter whitish with large black sternites, apical margin of hypopygium whitish.

Male—Structurally and in sculpture like female, but face, clypeus, lower part of frontal orbit, scape and pedicel in front, tegula entirely, and front and middle legs largely whitish.

Host—*Diprion nipponicum* ROHWER.

Typelocality—Nagawa-Mura, Nagano-Ken, Japan.

Type—No. 52116, U. S. National Museum.

Eight females and 10 males selected from a considerable series, all reared from the host, during January and March 1937 by R. W. BURRELL.

(1). Opusc. Ichn., Suppl.-Band, fasc. 19, 1934, pp. 63–68.

I suspect that this is the species recorded by UCHIDA¹⁾ under the name of *D. mandibularis* (GRAV.).

***Lophyroplectus nipponensis* new species**

Similar to the genotype and only previously known species, *luteator* (THUNBERG), but stouter, antennae with 3-5 more joints, eyes and ocelli larger, ocell-ocular line shorter, propodeum not completely areolated but with at most apical carina and faint traces of lateral and basal carinae, and front wing with at most a faint trace of ramellus.

Female—Length 11 mm. (holotype).

Head a little more than twice as broad as thick; temples strongly convex, reaching nearly to outside tangent of eye, finely granular and mat with fine sparse punctation; frons flat, very finely shagreened; combined face and clypeus distinctly broader than long, minutely shagreened, clypeus very weakly separated, sparsely punctate in apical half, apex broadly rounded; cheek barely half as broad as temple near top of eye; eyes very large, semiglobose in front view, much longer than width of face, parallel and very weakly arcuate within; malar space virtually obliterated; ocelli large, ocell-ocular line barely half as long as diameter of an ocellus; antennae slender filiform, tapering apically, about three-fourths as long as body, \pm 39-jointed (40-jointed in holotype), all flagellar joints elongate. **Thorax** stout, fully three-fourths as deep as long, distinctly compressed, minutely shagreened, mat, minutely and sparsely punctate on mesoscutum, scutellum, and pleura; notauli broad and shallow; propodeum short, strongly arched above and declivous behind, apical carina distinct but weaker medially, basal and lateral carinae absent or obsoletely indicated, spiracle moderately large, circular. **Wings**: Areolet small, strongly oblique, with a long petiole; discocubitus strongly curved but almost without trace of ramellus. **Legs** stouter than in *luteator*, hind femur barely six times as long as deep (fully seven times in *luteator*). **Abdomen** stouter than in *luteator*, postpetiole and second tergite each much less than twice as long as broad at their junction; minutely coriaceous and densely, finely hairy; compressed from apex of third tergite; ovipositor sheath much longer than deep.

Ferruginous; face, clypeus, mandible, palpi, pronotum, and legs more yellowish; stemmaticum and three indefinite vittae on mesoscutum more or less infuscate; wings hyaline, stigma stramineous, veins darker, sclerotized spot faint or absent.

Male—Essentially like female, but antennae fully as long as body and

(1). Jour. Fac. Agr., Hokkaido Imp. Univ., Vol. 25, pt. 1, 1928, p. 67.

blackish except first few joints; dark markings more distinct and pale portions paler.

Host—*Neodiprion sertifer* (GEOFFROY).

Type locality—Tamagawa, Tokyo-Fu, Japan.

Type—No. 52117, U. S. National Museum.

Eleven females and 13 males all reared from cocoons of the host during 1934 by R. W. BURRELL.

The infuscation sometimes spreads to the pleura or propodeum or abdomen.

The affinities of *Lophyrophlectus* are, in my opinion, with *Absyrtus* rather than *Perilissus*, especially in the form of the head and in the wing venation. The head is broadly transverse, the eyes and ocelli very large, and the malar space nearly obliterated. The stigma is large, with radius basad of the middle. The brachial vein is of much the same form as that of *Absyrtus*, but the fracture is less distinct and is nearer the apex.

***Lamachus albopictus* new species**

Females—Length 9–10 mm.

Head more than twice as broad as thick with temples strongly, convexly receding; finely coriaceous, with temples shining and face and frons mat and finely punctate; eyes slightly convergent below; malar space about a third as long as basal width of mandible; clypeus shining, impressed and deeply emarginate at apex; upper tooth of mandible slightly longer than lower tooth; antenna nearly as long as body, 36- to 38-jointed, basal joint of flagellum nearly twice as long as second joint. **Thorax** stout, nearly as deep as long; finely coriaceous and mat, rather densely and finely punctate; pronotal scrobe somewhat striate; notauli weakly impressed, distinct only anteriorly; mesoscutum posteriorly and scutellum more coarsely punctate, scutellum more sparsely so; propodeum with apical carina distinct but without longitudinal carinae; petiolar area rugulose. **Legs** long and rather stout, hind femur about six times as long as deep, reaching nearly to apex of abdomen; hind leg mat, coxa distinctly punctate laterally; inner calcarium half as long as basitarsus. **Wing** venation (normal for the genus): radius far before middle of stigma, apical abscissa nearly straight; recurrent interstitial with second intercubitus, convexly curved in upper half, with bullae separated by a sclerotized spot; nervulus distinctly postfurcal and somewhat inclivous; postnervulus broken at about middle; nervellus broken slightly below middle, upper abscissa inclivous. **Abdomen** rather slender first tergite nearly twice as long as broad; tergites 2 and 3 with length and breadth subequal; basal tergites mat and finely punctate, others subpolished; ovipositor sheath broad, truncate at apex.

Black, with whitish markings as follows: face (the white extending upward between antennae), clypeus (except around foveae), malar space, mandible, palpi, scape below, collar, sometimes lower angle of pronotum and lower margin of propleurum, spots at origins of notauli, humeral angle of pronotum and usually spots at base of tegula and on subalar tubercle, scutellum at apex and sometimes in basal angles and the margin of frenum, postscutellum and sometimes its frenum, anterior margin of mesonotum, upper end of mesepimeron, all coxae and front and middle trochanters ventrally, spot on outer face of second joint of hind trochanter, more or less of anterior surface of front femur and usually of middle femur (these parts also partly reddish), extensor surfaces of front and middle tibiae and of their tarsal joints except apices of the joints, broad subbasal annulus on hind tibia, narrow apical margins of tergites 2 and 3 and sometimes of 1 and 4, frequently spots laterally on tergites 5-7, apical margins of sternites, and more or less of hypopygium; body and legs clothed with dense, short, silvery pubescence.

Male—Differs from female principally in lacking some of the white marking and in having many of the others smaller; the markings of the head, collar, humeral angles, scutellum, postscutellum, front and middle coxae, and trochanters and of all the tibiae are always present, though some are reduced in size; the hind coxa and usually the abdomen are immaculate, the latter always lacking the lateral spots.

Host—*Diprion nipponicum* ROHWER.

Type locality—Toso, Kagoshima-Ken, Japan.

Type—No. 52118, U. S. National Museum.

Described from 14 females and 14 males from various localities in Kagoshima-Ken and Nagano-Ken, reared by R. W. BURRELL.